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# **MASTER OF MILITARY STUDIES**

**TITLE: The Debate is Over: Close Air Support in Korea and Vietnam**

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OF THE REQUIREMENTS FOR THE DEGREE OF  
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REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

## **Preface**

The majority of my combat experience in Iraq involved supporting ground forces. As a Marine F-18D pilot, I take great strides to provide effective close air support. In 2005, my squadron had the unique opportunity to exclusively support the Combined Forces Air Component Commander (CFACC) for half of our seven month deployment. Midway through the tour, the squadron transitioned to the Marine Expeditionary Force. From the first CFACC mission, I immediately saw a distinction between Air Force and Marine Corps close air support systems. At the time, I did not give much consideration to the differences. I understood bombs came off the jet faster under the Marine system. After the tour, analysis of the differences continued to escape me until I attended resident professional military education.

Five years later, during seminar at Command and Staff College, I questioned the effectiveness of Air Force close air support. I boasted that Marine close air support was more effective in Iraq. The civilian faculty advisor in attendance asked me to prove my hypothesis. So I began with a contemporary issue and with the help of my mentor, decided on a historical case study of Marine and Air Force close air support.

I would like to thank Dr. Ed Erickson for providing a provocative research question. I want to thank my mentor, Dr. Paul Gelpi for guiding me through the research and writing process. I also want to thank my wife, Susie for her support and patience throughout the academic year.

## **Executive Summary**

**Title:** The Debate is Over: Close Air Support in Korea and Vietnam

**Author:** Major Jeremy W. Siegel, U.S. Marine Corps

**Thesis:** The effectiveness of Marine Corps tactical aviation lies in Marine Corps doctrine; consequently, the Marine Corps provided the most effective close air support during the Korean and Vietnam Wars.

**Discussion:** During Korea and Vietnam, the U.S. Army and the Marine Corps called on Marine aviation and the Air Force to deliver close air support. The two services held divergent views on the close air support mission. The Air Force viewed close air support as a contingency whereas Marine aviation made close air support its primary mission; therefore, divergent perspectives affected service doctrine and planning for close air support. Integration led to greater responsiveness and more effective close air support.

**Conclusion:** Due to the integration of air and ground elements in Marine doctrine and practice, Marine aviation proved itself more effective in Korea and Vietnam. The Marine Corps provided the most effective close air support due to training, aircraft, and decentralized command and control. Air Force tactical aviation took a backseat to strategic nuclear doctrine. The Air Force lacked integration with the Army and close air support suffered due to the disconnected relationship.

## Introduction

Close air support (CAS) has been the catalyst of debate across all of the U.S. military services. Since the early employment of U.S. Army aircraft in support of infantry units in World War I to present day operations in Afghanistan, CAS has sparked inter-service rivalries over the proper use of aircraft in support of ground operations. Dialogue continues among military and academic circles as to which service provided the most effective fire support to ground units. A historical comparison of Marine Corps and Air Force CAS will help determine which service was more effective. This paper will focus on post-World War II U.S. Marine Corps tactical aviation and its execution of the CAS mission in Korea and Vietnam. The rationale for this case study is the Air Force and Marine Corps are independent services. Both services had comparable aircraft, weapons systems, and CAS missions. Despite the similarities, CAS effectiveness differed between the two services. The effectiveness of Marine Corps tactical aviation lies in Marine Corps doctrine; consequently, the Marine Corps provided the most effective close air support during the Korean and Vietnam Wars.

The analysis is not based on the number of CAS sorties flown or which service destroyed the most targets. It is certainly not an attempt to discredit the aircrews that performed the mission. Instead, this thesis comprehensively looks at the Marine Corps' and Air Force's CAS planning. Effectiveness centers on integration between air and ground elements and how that relationship correlates to responsiveness. The comparison addresses how each service regarded the CAS mission and the steps taken to provide effective CAS in the Korean and Vietnam Wars.

## **Transformation of Marine Aviation**

Close air support was not the primary mission for Marine Squadrons in the Pacific. The Marine air element was often separated from the ground element. Operating from remote land bases, Marine squadrons primarily piloted air superiority missions. The isolation prevented Marine air from supporting the infantry; however, it did not prevent Marine pilots from developing new tactics, techniques, and procedures to fight as an air-ground team. The Corps neglected CAS during World War II due to lack of opportunity, not lack of interest.<sup>1</sup>

By the end of World War II, Marine Corps leaders were eager to reunite Marine aviation back into the Marine Corps. To unify meant re-centering Marine aviation on its fundamental purpose: to support the ground Marines. Colonel Clayton C. Jerome and Lieutenant Colonel Keith B. McCutcheon were at the forefront to make CAS the primary mission. In a time when conventional forces were perceived to be irrelevant, Marine aviation made CAS its first priority.<sup>2</sup> The undeterred Marines hit the beach in Korea with bayonets fixed and air support directly overhead. It was the dawn of the Marine Air-Ground Task Force (MAGTF).

On the eve of the Korean War the MAGTF was born. Although the MAGTF was not in the Marine lexicon at the time, the air-ground team concept most certainly was. In 1952, President Truman validated the Marines' performance in Korea by signing a law designating the Corps a separate service within the Department of the Navy. The statute confirmed the MAGTF concept and mandated a minimum force structure of three Marine divisions and three aircraft



wings to support the divisions. The Marine concept of integrating the aviation combat element with the ground combat element under one commander was truly unique and a hallmark of the modern Marine Corps.

### **Transformation of an Independent Air Force**

In September 1947, the U.S. Army Air Forces gained independence from the Army and became the U.S. Air Force. Now an autonomous service within the military establishment, the Air Force made difficult choices regarding its role in the defense of the United States.

President Truman's National Security Act of 1947 passed vague guidance to the military on its functions and missions. Using the decisive victory in World War II as a model, the Air Force adopted a strategic stance on future conflict, concluding that nuclear weapons or the threat of those weapons would play a major role in the outcome of war. A nuclear strategy provided an exclusive mission for an autonomous Air Force: intercontinental nuclear strike. The Air Force remained in control of its aircraft, which it fought hard to achieve. Consequently, the Air Force's eagerness to retain control inhibited the effective execution of CAS.<sup>3</sup>

In March 1948, Secretary of Defense Forrestal assembled the Joint Chiefs of Staff in Key West, Florida. He wanted to reach an agreement on roles and missions between the U.S. Military services. The Air Force solidified its missions in consonance with their strategic views. Air defense, air supremacy, strategic air warfare, close combat and logistical air support to the Army, and air transport for the Armed Forces became the Air Force's emphasis.<sup>4</sup> The Key West Directive never clearly assigned the close air support mission directly to the Air Force.<sup>5</sup> Many agreements made in Key West were left up to interpretation or in the case of CAS, never

discussed. In 1949, the Air Force announced that strategic bombing was its primary mission.<sup>6</sup>

Tactical Air Command (TAC) became an afterthought behind the developments of the Strategic Air Command (SAC). By disregarding the tactical implications of war, the Air Force distanced itself from the Army and the CAS mission.

## **Training**

Marine Corps Professional Military Education (PME) played a crucial role in the reunification of the air-ground team, which resulted in more effective CAS. At the end of World War II, Commandant Alexander A. Vandergrift recognized past combat operations eroded the Marine air-ground team concept. He attributed the erosion to operational tempo during World War II, which prevented air and ground officers from attending the same career level schools.<sup>7</sup> Pre-war officer education and training instilled the tenet that every Marine was a rifleman. Vandergrift feared the lack of integrated PME between air and ground officers dissolved that ethos.<sup>8</sup> General Vandergrift reestablished the Basic School for newly commissioned officers to instill the Marine mission and culture back into its officers. At the Basic School, the Marine Corps indoctrinated prospective aviators in Marine culture and infantry training. Company grade and junior field grade officers attended the Junior School at Geiger Hall while senior field grade officers attended the Senior Course at Breckenridge Hall.<sup>9</sup> Once again aviators and their ground officer contemporaries shared the classrooms of various formal schools throughout Marine Corps Base Quantico.

The Marine Corps understood the benefit of reintegrating air and ground officers into its formal schools. Officers, many for the first time, shared experiences and lessons learned with

their counterparts on the battlefield. In terms of enhancing the CAS mission, the Marine Corps also understood reintegration was not enough. The curriculum within the formal schools changed to keep up with the new emphasis on CAS. The syllabus at Amphibious Warfare School reflected the adjustment in priority. In 1946, the course dedicated 22.5 hours toward aviation, with three hours devoted to CAS. By 1949, aviation instruction increased to 114 hours, with eight hours devoted to CAS.<sup>10</sup> The Marine Corps made a concerted planning effort to educate its officers in order to elevate the level of support to the infantryman.

The Marine Air-Infantry School supplemented CAS education from the Quantico schools. The sixteen-week program indoctrinated those officers who had not attended resident PME. Approximately half of the students were aviators and the rest ground officers with varying experience with CAS. Of those students familiar with CAS, only understood it from their own air or ground perspective.<sup>11</sup> The course design bridged the gap between those two perspectives. Pilot and student, First Lt. Edward P. Stamford recalled,

We did learn the problems of the infantry in the field from their point of view. We worked in the field as ground soldiers and then, toward the end of the course, we used aviators in the field to direct us while the other half of the class, which was made up mostly of aviators, worked from the air. Then we changed off and those who had flown directed on the ground and those on the ground learned to strike. It worked out very well and our eyes were opened a great deal.<sup>12</sup>

Outside of the school house, the Marines continued to train and deploy as an air-ground team. Between 1949 and 1950, the 5<sup>th</sup> Marine Regiment and 1<sup>st</sup> Marine Aircraft Wing (MAW) spent most of the time in the field honing its combined arms tactics. CAS and artillery live fire exercises provided valuable lessons on integrating the two arms.<sup>13</sup> The Marines' training tempo was so intense, a spouse exclaimed, "My kids have forgotten what their father looks like."<sup>14</sup>

The training paid off when General MacArthur requested additional support in Korea. The Marines were doctrinally prepared and underway in less than a week.

Enroute to Korea, Commanding Officer of the 1<sup>st</sup> Provisional Marine Brigade, Brigadier General Craig met with General MacArthur in Tokyo. He informed MacArthur that the brigade was an air-ground team and had trained as such. Craig expressed his desire to keep the ground and air elements intact. He told MacArthur, "If they (U.S. Air Force) took our air force away from us, our fighting potential would be cut about ninety-nine percent."<sup>15</sup> Craig's statement explains why the 5<sup>th</sup> Marines deployed to Korea with a Marine Aircraft Group (MAG). As an institution, the Marine Corps recognized the whole is greater than the sum of its parts. Infantry and air power are not successful in isolation, but when combined it is a force multiplier. The Air Force held the opposite view.

The Air Force placed little emphasis on the CAS mission after World War II. Funding constraints and fighter aircraft versatility to perform multiple missions compelled the Air Force to combine air defense and TAC under the Continental Air Command. TAC was stripped of their units and reduced to an operational and planning headquarters.<sup>16</sup> The Director of Plans for TAC, Colonel William W. Momyer prepared a study in 1948 to assess Air Force missions. His study concluded that the TAC would only be relevant if a strategic atomic attack failed. He pointed out conventional air-surface attack was an unlikely contingency. The analysis assumed that if war degenerated to conventional action, it would take place two years after hostilities began.<sup>17</sup> Based on that assumption, the two-year grace period gave the Air Force time to train its pilots for tactical air missions.

The time gap quickly decreased when the Soviet Union detonated an atomic bomb in 1949. Soviet nuclear success combined with North Korea's invasion of South Korea in June 1950 challenged Momyer's assumption and required the Air Force to reevaluate its strategic policy. The Air Force decided to reestablish TAC in December 1950, six months into the conflict.<sup>18</sup> The change occurred for two reasons. First, Air Force leadership worried the Army would gain control of tactical air assets if it did not show initiative towards tactical air support.<sup>19</sup> Second, SAC did not want to conduct tactical missions. Air Force Lieutenant General Curtis LeMay said, "If you have to employ strategic air power against tactical targets, you are not getting the full use of the weapon."<sup>20</sup> LeMay made a good point, but TAC did not want to conduct conventional tactical missions either. By July 1951 TAC set a course for tactical nuclear delivery. Given authorization from the Joint Chiefs of Staff, the Air Force directed TAC to organize atomic air division.<sup>21</sup> Strategic doctrine dominated throughout the Air force and TAC gave minimal effort towards CAS as a result; but it was just enough to keep Army leadership from gaining tactical control of aircraft.

CAS is a complex mission that requires dedicated practice by both air and ground elements for its effective employment. The Air Force's strategic doctrine led to little integration and less responsive CAS. Neither soldier nor airman trained sufficiently in CAS techniques in order to maintain proficiency and competency.<sup>22</sup> In contrast, the Marine Corps did not view CAS as a contingency. The Marine Corps saw an opportunity to make CAS their specialty and set forth a plan to identify deficiencies, correct those deficiencies, and integrate

the ground and air elements. At the start of the Korean War, the Marine Corps developed a responsive CAS system that appealed to Marines and Soldiers on the ground.

### **Aircraft in Korea**

The Marine Corps provided more integrated and responsive CAS in Korea due to its aircraft. The F4U Corsair became Marine aviation's plane of choice. Early models of the Corsair were formidable fighter aircraft best suited for the air superiority role. By 1944, the Marine Corps made a deliberate effort to transform the Corsair from a fighter to a multi-role fighter-bomber. As such, the F4U-1D was refit with hard points capable of carrying air-to-ground bombs and rockets. A 20mm cannon replaced the .50-cal machine guns and the installation of a ten-channel radio facilitated better communications with ground forces. The upgraded Corsair was such an effective ground attack platform that the Marine Corps decided to do away with its torpedo and dive bomber aircraft. By the time the Corps entered the Korean War, the only aircraft the Marines flew, except for one squadron of F9F jets, was the Corsair.<sup>23</sup>

The versatile Corsair gave Marines the flexibility to operate from remote land bases or from Navy carriers. The Corsair allowed Marines to operate from unimproved airstrips on the Korean Peninsula. Forward bases reduced transit time and increased on-station time to ensure rapid response to air support requests. Ground commanders expected CAS within ten minutes due to minimal artillery support.<sup>24</sup> In order to meet that expectation, airborne alerts became standard procedure. The Corsair's low fuel consumption made airborne alerts an efficient and responsive technique. Marine F4Us loitered in the combat zone for upwards of two hours and delivered ordnance within minutes.

In contrast to the Corps, the Fifth Air Force used jet aircraft such as the F-80 and the F-84 as its primary CAS aircraft. The jet fighter-bombers limitations affected the responsiveness of CAS missions. The F-80 proved incapable of carrying mixed loads of bombs, rockets, and external fuel tanks required for CAS. Once Kimpo airfield was lost, combat operations launched from distant Japanese airfields. Excessive fuel consumption and inadequate time over targets resulted in ineffective CAS.<sup>25</sup> In the summer of 1950, the Air Force replaced six F-80 squadrons with propeller driven F-51 Mustangs to compensate for the jet's inadequacies.<sup>26</sup>

It is inconclusive whether the Air Force deployed the Mustang in response to the Corsair's success. The aircraft argument is not based on jet versus propeller. Jet aircraft often performed better in CAS. Colonel Jack R. Cram, a Marine pilot who flew both Corsairs and jets in Korea said, "Without question, jets were an improvement on the Corsair."<sup>27</sup> However, the argument has everything to do with the Marine Corps' foresight and planning to produce a dedicated CAS aircraft before the war. X Corps Commander, General Almond concluded that one of the reasons CAS provided by the 1<sup>st</sup> MAW was superior to the Air Force was Marine aircraft were designed solely for CAS, whereas Air Force planes were designed to fight other planes in the air.<sup>28</sup> The Marine Corps also operated its planes inside Korea from day one. The Air Force dusted off a reactionary plan by resurrecting the F-51 amidst the war to overcome its CAS aircraft shortfalls. In 1950, the same holds true for CAS command and control.

### **Command and Control in Korea**

The War Department Field Manual 31-35, *Air-Ground Operation*, revised in 1946 provided the doctrinal foundation for Air Force operations during the Korean War. The manual

tried to incorporate lessons learned from World War II and accommodate two competing demands placed on the Air Force. The first demand mandated Air Force control of tactical air resources and the second, required unified action among all the services. CAS was at the center of these conflicting demands.<sup>29</sup> In an attempt to overcome this dilemma, F.M. 31-35 proposed two parallel structures for the command and control of CAS. A system for requesting air strikes originated on the groundside. On the airside, a Tactical Air Control System (TACS) allocated aircraft (Figure 1). Joint planning occurred at the Joint Operations Center (JOC) which linked the two parallel systems.<sup>30</sup>

The ground commander initiated air strike requests. Requests worked their way up through the division and corps level to the JOC. Air Force liaison officers attached to the intermediate levels were not permitted to request air strikes. Once the JOC approved the request, strike orders proceeded through the TACS. The order continued through the Tactical Air Control Center (TACC), which tracked all air units, to the Tactical Air Direction Center (TADC), which directed the aircraft to a specific location, to the Tactical Air Control Party (TACP). The TACP comprised of a forward air controller (FAC) and an assistant, provided air strike terminal control.<sup>31</sup>

When the war began, the command and control doctrine was put to the test. Absent air-ground integration plagued the Air Force system at all levels. The command and control disconnect began at the top. Brigadier General Edward J. Timberlake, Jr., Fifth Air Force forward HQ Commander, created the JOC, TACC, and placed three TACPs with the 24<sup>th</sup> Infantry Division in July, 1950.<sup>32</sup> Initially, Army representation at the JOC was nonexistent. Interface at



the tactical level also broke down because there were no TACPs below the Army division to control aircraft strikes.<sup>33</sup> Poorly integrated TACPs with inadequate communications found themselves susceptible to enemy fire. Elements of two TACPs were killed in action and a majority of their radio Jeeps were destroyed by fire. After mid-July, the TACP were ordered not to advance forward of Regimental headquarters and the control of CAS shifted to airborne Tactical Air Coordinators (TAC), known as "Mosquitoes."<sup>34</sup>

TACs provided control from their T-6 spotter planes but still lacked the ground to aircraft coordination required for effective CAS. TACs preferred to direct strikes well forward of friendly troops, usually without any coordination between friendly artillery and infantry action.<sup>35</sup> The system failed when CAS was required in close proximity to the bomb line. During a routine Mosquito mission, then Captain Charles Dryden was on aerial patrol west of the Nakdong River. As Dryden scouted the area he noticed friendly forces preparing defensive positions. Over the radio, the TACP (located far away from the bomb line) passed a target location. Dryden plotted the enemy position and it corresponded with the friendlies he just flew over. He saw no enemy and passed the friendly location to the TACP. The TACP became outraged and ordered Dryden to control an attack at that target. Complying with the order, an F-51 dropped its napalm on Scottish Argyle Soldiers, causing almost 100 casualties.<sup>36</sup> Moral courage aside, the Air Force system blurred the lines of authority, which resulted in fratricide, not more effective CAS.

According to Historian, Allan R. Millet, "the Fifth Air Force's emergency system might have satisfied ground commanders if the Navy and Marine Corps fighter-bombers had not

entered the battle.”<sup>37</sup> Some Army ground officers saw the revised Air Force system lacking integration when compared with the World War II system and less beneficial to the infantry, as a result.<sup>38</sup> The system tried to quell the struggle between the competing demands but still shortchanged the importance of CAS. The Air Force refused to delegate aircraft control to the ground commander, which yielded adequate, not effective CAS. The Air Force did not attempt to write a joint directive on CAS until the start of the Korean War. By then it was too late to affect air-ground integration. The Air Force relied on divided doctrine from F.M. 31-35 in the absence of proper CAS planning.

Marine CAS doctrine developed in the South Pacific became standard policy during Korea. On the surface, the Air Force command and control system was similar to the Marine Corps. The ground commander initiated air strike requests, TACPs provided terminal control, and both systems utilized airborne TACs. The divergence was easily recognized when the 1<sup>st</sup> Provisional Marine Brigade deployed to Korea with its organic aviation.

The brigade formed around the 5<sup>th</sup> Marine Infantry Regiment, with MAG 33 in support. Commanding, was Brigadier General Craig and his aviator deputy was Brigadier General Cushman. Having a pilot as second in command reflected the integrated air-ground relationship within the brigade that lacked in the Air Force/Army command element.<sup>39</sup>

FAC placement throughout the brigade greatly enhanced CAS effectiveness. The TACPs consisted of a pilot/FAC, a radio operator, and five enlisted men that were permanently assigned to each of the brigade’s three infantry battalions, and a TACP was attached to the division and regiment. Unlike the Air Force, Marine TACPs at all levels initiated air strike

requests through the direct air support center (DASC). The DASC allocated ground or airborne alert aircraft and directed the CAS aircraft to the requesting FAC (Figure 2).<sup>40</sup>

The Marine Corps also employed airborne TACs in addition to ground FACs. A distinct difference existed between Marine and Air Force TACs. Marine TACs worked in conjunction with ground FACs, while the Air Force TACs replaced the ground FACs. Marine TACs maintained situational awareness to the battle in progress. They orbited the battlefield and remained in radio contact with the FACs to facilitate the constant flow of CAS aircraft into and out of the target area.<sup>41</sup> Marine TAC-FAC teams enhanced air support by expediting target identification and reducing the time to safely destroy targets in close proximity to friendly lines. Captain "Mickey" Finn, flew as TAC in the battle of the Naktong Bulge. As the North Korean formation withdrew across the Naktong River, he recalled, "The planes strafed them in the river, along the roads, and in the rice paddies." Finn attributed success to the close coordination between the aviator, TAC, and FAC. He was impressed with the "excellent control from the ground."<sup>42</sup> The Air Force's preference to employ TACs in lieu of ground FACs resulted in one too many friendly fire incidents.

## **Between Two Wars**

At the end of the Korean War, the United States repelled one communist threat but quickly changed its focus to prevent another communist takeover in South East Asia. To ensure the United States would never be involved in another war like Korea, the Eisenhower administration implemented a "New Look" national security strategy. New Look emphasized air power's ability to employ strategic and tactical nuclear weapons to deter general and

limited wars at a reduced cost in manpower and money.<sup>43</sup> According to historian, Earl Tilford, the New Look defense strategy in large part, determined how the Air Force approached the Vietnam War.<sup>44</sup> On 4 December 1957, Air Force Chief of Staff, General Thomas D. White went public with the Air Force's official policy on limited wars. White said, "Just as nuclear delivery capability constitutes a deterrent to general war, so can this total firepower deter local war. The right measure of this total firepower can, in turn, resolve local conflict if we fail to deter aggression."<sup>45</sup>

White's statement overlooked the lessons learned from the Korean and French Indochina Wars. He failed to recognize that the United States possessed nuclear weapons before the Korean War and it did not deter aggression or resolve local conflict. Driven by the understanding the nation was through fighting limited wars, the Air Force continued the strategic mindset of the post-World War II era. As a result, the Air Force reduced the number of tactical fighter wings from 55 to 45 in 1958. The Air Force urged the Army to develop surface-to-surface missiles to compensate for the loss of air support.<sup>46</sup> Air Force policies on nuclear deterrence overshadowed the developments of CAS and further segregated the air and land domains. Air Force Chief of Staff, General John McConnell admitted in 1968, "We (Air Force) did not even start doing anything about tactical aviation until about 1961 or 1962." He also stated that Air Force tactical aircraft, aircrew, and training were deficient in conventional warfare, resulting in ineffective conventional operations.<sup>47</sup> It took another year before the Air Force addressed its CAS training problem.

## Training

In the spring of 1963, TAC began a CAS evaluation program called Full Scope to identify strengths and weaknesses in their tactical air operations. The Air Force also hosted thirty-two joint exercises with the Army in eighteen months emphasizing CAS tactics. From the frequency of the joint training exercises, it appeared that the Air Force embraced the CAS mission; nevertheless, Air Force training requirements contradicted the impression. Every six months, F-100 pilots qualified in three types of nuclear delivery, have a familiarity with two other types, and attend a refresher course for nuclear delivery. Pilots only qualified annually with conventional weapons delivery and be familiar with, not proficient in, delivering nonnuclear weapons.<sup>48</sup> Training requirements and General McConnell's statement on tactical preparation best summarized the Air Force's true commitment towards CAS.

Under the New Look, the Marine Corps developed its Fleet Marine Force (FMF) as a force in readiness; however, doing so proved difficult with the Eisenhower's Administration emphasis on strategic bombing and nuclear deterrence meant budget and manpower cuts for conventional Marine forces. For the next several years the Marine Corps' table of organization rapidly dropped from 248,000 at the end of Korea to 170,621 by 1960. In addition to manpower problems, Marine aviation underwent modifications in light of a new 1,050 aircraft cap. Approximately 500 fighter-attack aircraft were cut from the inventory, which reduced the FMF's CAS sorties rates to half of what it had been in Korea.<sup>49</sup> The Marine Corps planned for new low cost ways to advance CAS due to the budget cuts. Leaving the rifleman without air support was not an option and the Corps began research and development on several CAS

related programs. Advancements were made in jet aircraft procurement, all-weather bombing, expeditionary airfield construction, and helicopter gunship technology.

The Kennedy Administration marked a new beginning for the Marine Corps in its struggle to be the nation's force in readiness. The Corps won several small victories in 1960. Kennedy believed the military services were unprepared for conventional warfare and took measures to boost the conventional forces. The administration increased the size of the Marine Corps to 190,000 and increased its budget by sixty-seven million dollars within six months of entering office.<sup>50</sup> Marine aviation saw benefits due to its planning efforts. Secretary McNamara approved the plan to upgrade the Corps' aging CAS aircraft. Of note, the Marine Corps looked toward the future in testing a new dedicated CAS aircraft capable of vertical/short takeoff and landing like the British Harrier.<sup>51</sup> Although this concept was not approved until the late 1960s, it highlights the Marine Corps' initiative to provide integrated and responsive CAS.

Training in conjunction with modernization efforts dramatically increased Marine readiness. By 1964, the FMF conducted forty-five amphibious exercises worldwide. Brigade Landing Exercise Clear Ridge in 1959 and Exercise Steel Pike I in 1964 were consistent with the Corps' CAS progression objectives. The FIREX (live fire) portion of Clear Ridge incorporated the employment of all supporting arms available to the Brigade. The aviation assets dedicated to the FIREX included, transport helicopters and attack aircraft from MAG 13. Out of the seven FIREX objectives, five pertained to CAS. For instance, FIREX objective four evaluated the effectiveness and speed of jet attack for delivery of fire support to the helicopter assault wave.<sup>52</sup>

Five years later, Steel Pike I brought a Marine Expeditionary Force to Spain. The exercise continued to evaluate CAS readiness and increased the level of integration by adding expeditionary airfield operations. The exercise tested the FMF's ability to install and execute air operations from a Short Airfield for Tactical Support (SATS) on foreign soil at a given time.<sup>53</sup> SATS was a mobile expeditionary airfield assembled from aluminum matting designed to keep Marine air power accessible to its ground combat forces in austere locations. Sixteen aircraft from MAG-31 were stationed at the SATS strip. They provided CAS to the combined landing force from sunrise to sunset.<sup>54</sup>

Exercise Clear Ridge and Steel Pike I demonstrated the inseparable bond between Marine air and ground forces. No matter where the infantry went to train, Marine aircraft supported them. The Marine Corps overcame many hurdles between the two wars without sacrificing its tactical prowess. Commandant Wallace Greene commented in 1965, the FMF was in the best state of readiness he had ever seen in thirty-seven years of service.<sup>55</sup> The Marine Corps ensured the air combat element was well trained and equipped prior to deploying to Vietnam.

### **Aircraft in Vietnam**

In Vietnam, the Marine Corps transitioned from the war proven propeller driven CAS aircraft to jets. Although jets had endurance limitations and typically required improved airfields, the Marine Corps reasoned the jet's increased airspeed enhanced responsiveness and survivability. The A-4 Skyhawk quickly became the workhorse in the Marine inventory. The A-4 program began in 1952 as a joint Navy and Marine initiative to build another dedicated CAS

platform. Highlighting Marine air integration with their infantry counterparts, Skyhawk design recommendations came from pilots, FACs, and ground officers.<sup>56</sup> The successful collaborative effort produced a premier CAS aircraft capable of delivering a wide variety of ordnance on precise targets. The Skyhawk however, was not immune to the shortfalls that plagued jet aircraft. The Marine Corps understood these limitations and through deliberate planning developed means to mitigate the Skyhawk's deficiencies.

The validated SATS was put to use. Combined with the Tactical Airfield Fuel Dispensing System, the A-4 conducted CAS missions closer to the front lines and no longer relied on distant improved airfields. Thus, reducing transit time and increasing on station times and responsiveness. As the Marine battalions arrived at Chu Lai, the naval construction battalion known as Seabees began building the expeditionary airfield for the three A-4 squadrons from MAG 12. In a month's time the SATS was complete. On 1 June 1965 the first Skyhawk landed at Chu Lai and launched its first combat mission later that day.<sup>57</sup>

The A-4 was initially a visual bomber. The Skyhawk could navigate at night and in poor weather, but required visual target acquisition to deliver ordnance. The Marine Corps participated in the Navy's A-6 Intruder program to ensure poor weather did not deny ground forces the CAS they expected. The Intruder incorporated an internal radar-beacon targeting system and was backed up with TPQ-10 ground based bombing guidance system. These two systems allowed the A-6 to drop bombs on targets the aircrew could not visually identify. The 1<sup>st</sup> Marine Aircraft Wing began operating the TPQ-10 upon arrival in Vietnam, and it was the only ground based bombing radar in the country for over a year.<sup>58</sup>



Perhaps the most controversial CAS aircraft the Corps employed was the UH-1E "Huey". The notion of converting a helicopter into an attack aircraft was not a new idea. The Marine Corps was the first service to test and produce doctrine for the employment of rotary-wing aircraft.<sup>59</sup> Within a year of receiving its first helicopter, the Corps confirmed its effectiveness as a ground attack aircraft.<sup>60</sup> In Vietnam, the Marine Corps faced opposition toward the use of armed helicopters. In 1964, the Joint Chiefs of Staff made a statement concerning helicopter operations. They said, "Helicopters are for use as transport and their weapons are for the protection of the aircraft and passengers. Armed helicopters will not be used as substitutes for Close Air Support."<sup>61</sup> Ultimately the Marine Corps' and Army's vision for armed helicopters persevered and the development of attack helicopters continued.

The UH-1E was initially outfitted with two bomb racks capable of carrying two 2.75-inch rocket pods or two .50 caliber gun pods. Later, a chin turret was mounted underneath the aircraft containing two M-60 machine guns, which the pilot aimed and fired.<sup>62</sup> The UH-1E was equipped with radios compatible with both air and ground forces, making it an effective command and control platform. Marine Corps leaders hailed the UH-1E a success and an absolute necessity for close-in support for vertical assault operations.<sup>63</sup> By 1969, the Marine Corps received its first dedicated attack helicopter while the Air Force continued to boast the superiority of fixed wing aircraft.

The primary Air Force CAS aircraft in Vietnam was the supersonic F-100D fighter-bomber. Originally designed as a day fighter and air superiority aircraft, the F-100D was adapted to fulfill the interdiction, nuclear, and CAS roles. The F-105 Thunderchief was also

called upon for CAS. The F-105, most notably by its internal bomb bay, was conceived for nuclear weapons delivery. Air Force policy emphasized a multipurpose aircraft despite continuous requests by the Army to develop a dedicated CAS aircraft. Army officers criticized the development of these planes because they had no input in the design specifications.<sup>64</sup> The F-100 and F-105 were designated fighter-bombers and expected to conduct a variety of missions including air intercept. Each mission varied in weight. CAS ranked low on the priority list and that is why the Army was not consulted. The Air Force's planning efforts in Vietnam did nothing to contradict that conclusion.

In the advisory years of Vietnam, the Air Force was unprepared for counterinsurgency. The Air Force closed production lines of conventional ordnance in light of the Army's advances in organic missiles and helicopters. The Air Force relied on the Navy for conventional bombs and A-1 Skyraider CAS aircraft.<sup>65</sup> As the requirement for CAS increased, so did the requirement for FAC capable aircraft. According to TAC Commander, General Mommyer, "the Air Force had phased down some of its FAC structure at the end of the Korean War."<sup>66</sup> As a result, the Air Force procured FAC planes from the Army.<sup>67</sup> Aircraft and munitions shortfalls were corrected quickly but the all-weather bombing limitation was not so quickly addressed.

The Air Force had a limited ability to provide CAS at night or in bad weather. The North Vietnamese took advantage of this weakness by conducting operations during these conditions, which left Air Force fighter-bombers ineffective. The Air Force deployed the MSQ 77 Skyspot bombing radar in March 1966 to overcome its all-weather shortfall. The Skyspot was comparable to the TPQ-10 radar the Marine Corps used, but with one major employment

difference. The Air Force did not rely on a FAC for terminal control. A radar controller not located with the ground unit provided coordination for the attacks. In the lore of Air Force history, the Skypot had two advantages over visual, FAC directed CAS. First, it was more accurate, allowing pilots to drop closer to friendly troops. Second, it allowed the pilot to release ordnance with greater standoff distance from enemy air defenses.<sup>68</sup> The fact that these advantages were taken from the pilot's perspective illustrated the disjointed relationship with the ground forces and the CAS mission. The Air Force's conclusion was inaccurate because it presumed that ground controlled fires were less effective. That was not the case. The Air Force sought to use Skyspot in favor of its own FAC procedures. Nevertheless, the Air Force's ad hoc planning left their aircrew ill equipped and ground units unprotected for years.

### **Command and Control in Vietnam**

Training produced integrated CAS. Aircraft increased the responsiveness of CAS. Command and Control however, was the overall lynchpin for effective CAS. In order to be objective, this paper will discuss the command and control structure prior to the single air-manager system but after the Vietnam Air Force – U.S. Air Force tactical air control system. It will analyze the Marine and Air Force systems independently from 1965 to 1968.

Prior to 1968, the Marine Corps Command and Control System (MACCS) controlled Marine air operations within the I Corps tactical zone (ICTZ). 1<sup>st</sup> MAW constructed the MACCS architecture. The highest echelon was the Tactical Air Direction Center (TADC), co-located with 1<sup>st</sup> MAW headquarters. The TADC was responsible for future planning, producing the air tasking order (ATO), and providing supervision for current air operations. Directly underneath

the TADC was a Tactical Air Operations Center (TAOC) and five DASCs located throughout the ICTZ. The TAOC provided command and control through radar surveillance for air defense and air traffic control. The DASC served the same purpose in Vietnam as it had in Korea. It was the primary link between the ground units and the supporting aircraft. The DASCs were collocated with the Division's Fire Support Coordination Centers (FSCC), the ground units' coordination center for artillery, mortar, and air support.<sup>69</sup> The flat MACCS architecture emphasized the Marine centralized command and decentralized control doctrine (Figure 3).

The MACCS' simple and integrated system took into account both preplanned and immediate tactical air requests. Both types of requests flowed through the same coordinating agencies. The only difference being, preplanned request were formalized on the ATO a day prior. The ground units pushed air support requests through the DASC. The DASC processed the requests and coordinated with the FSCC. The request were prioritized and sent to the TADC. Preplanned request were written into the ATO and disseminated to the three MAGs for execution. The process took approximately twenty hours from request to CAS aircraft overhead the target.<sup>70</sup> In contrast to the Air Force system, which only accounted for fixed-wing sorties, the Marine ATO included rotary-wing sorties.<sup>71</sup> 1<sup>st</sup> MAW also made excess sorties not used to support Marine divisions available to 7<sup>th</sup> Air Force.<sup>72</sup>

Immediate requests went to the nearest DASC via radio communications from the TACP and continued up to the TADC. Once the request was approved, the DASC diverted or directed the airborne alert to the appropriate FAC on the ground (Figure 4). At least two FACs were

attached to each Marine battalion to provide terminal control of each CAS mission from the ground.<sup>73</sup> The furthest link in the MACCS was the forward air controller (airborne) or FAC(A).

Unlike the Air Force, the Marine Corps expanded its FAC(A) capabilities since the Korean War. The primary difference between Marine FAC(A)s and Air Force FAC(A)s was the Marines considered them an extension of the ground TACPs. The FAC had ultimate authority for CAS strikes by virtue of being with the supported ground unit. If the terrain or circumstances were such that ground control proved inadequate, terminal control authority was delegated to the FAC(A). Another distinction was, the Marine FAC(A) was trained and equipped for CAS from the beginning of the Vietnam War.<sup>74</sup> The Marine FAC(A) was a true combined arms asset. Pilots with CAS experience trained to control air and to adjust artillery and naval gunfire in close coordination with the ground FAC. More importantly, they trained to deconflict and synchronize supporting fires. Artilleryman, Gunnery Sergeant Billy Martin commented on the Marine FAC(A)'s effectiveness at Khe Sanh. Martin praised the FAC(A), for what he called an "ingenuous" ability to adjust fires for not being an experienced artilleryman. The FAC(A) identified the target. By understanding the different fuse settings, the FAC(A) determined the closest battery for the attack. He then directed the sequence of the attack by adjusting each gun on to the target with devastating results.<sup>75</sup> Successful airborne call for fire missions are a testament to the Marines' holistic training. The FAC(A) increased the time of attack by understanding the ground forces capabilities and procedures. Targets would have gone untouched without this requisite knowledge.

FAC(A) missions were also performed with a multi-crew cockpit from various aircraft such as the O-1 Bird Dog, the two-seater TA-4 Skyhawk, and the UH-1E Huey. This versatile technique allowed FAC(A) crews to mark targets, provide aircraft terminal control, and remain in constant communication with ground units, other supporting fires, and MACCS agencies. The Marine Corps FAC(A) and CAS procedures were exemplary and did not go unnoticed.

In 1966, a special congressional subcommittee praised the Marine Corps' CAS system. They concluded, "The Navy/Marine Corps doctrine, organization, and the equipment employed in close tactical air support of ground forces are obviously superior to that of other armed services." The committee would go on to say, "The knowledge, the technique, the capability for effective close air support exists. It could well be emulated by the Army-Air Force team."<sup>76</sup> It took over sixteen years for the Army-Air Force team to establish a command and control system that compared to the Marine Corps.

The Joint Air-Ground Operations or JAGOS manual produced in 1957 outlined the basic Army/Air Force command and control structure in Vietnam prior to 1965. As American ground troop involvement increased in Vietnam, so did the dependency on CAS. The antiquated system designed to support the Vietnamese Army was simply not going to work. Modifications altered the existing tactical air control system to increase the effectiveness of CAS to the incoming U.S. Army. The revision was the "Concept for Improved Joint Air-Ground Coordination" implemented in 1965.<sup>77</sup> Although the modifications did not affect the JAGOS architecture, doctrinal concessions were made by both the Army and the Air Force. By this new directive the Army agreed to the centralized command and control of Air Force tactical aviation,

while the Air Force accepted decentralized execution of tactical missions by giving control authority to the DASC.<sup>78</sup>

The U.S. Commander of Military Assistance Command, Vietnam (COMUSMACV), General Westmoreland sought further integration and combined the Army air-ground system with the Air Force tactical air control system. In 1966, the COMUSMACV established a new JAGOS, which the Marine Corps was later forced to join in 1968 (Figure 4).<sup>79</sup> The point being, Westmoreland envisioned this new integrated command and control system, not the Air Force leadership. It is not surprising the new JAGOS closely resembled the MACCS, which had been in place since Korea.

## **Conclusion**

The debate is over. The Department of Defense charged the Marine Corps and Air Force with providing CAS to infantry units in Korea and Vietnam. Yet, the two services had a divergent view on the proper use of aircraft in support of the infantryman. The CAS mission periled with Air Force independence. Cooperation with the Army threatened Air Force autonomy, which affected Air Force training, aircraft procurement, and command and control. All three were developed for the Air Force's primary strategic mission. CAS was an afterthought. When CAS became a reality, the Air Force reacted. At the tactical level, Air Force pilots did their best and had many successes. Favorable testimony however, does not equal effectiveness.

The Marine air-ground team proved more integrated in the planning and execution of CAS. A linear progression existed between integration and responsiveness that produced more effective CAS. Marine CAS effectiveness verified Marine Corps doctrine. CAS was Marine Corps aviation's primary mission. The Corps task organized and trained for the CAS mission prior to deployment. Pilots flew in dedicated CAS aircraft controlled by a decentralized MACCS. The combination was cohesive, fast, and lethal. The Marine air-ground team set the example for others to emulate because Marine tactical aviation provided the most effective CAS during the Korean and Vietnam Wars.



Field Manual 31-35  
Air-Ground Operations

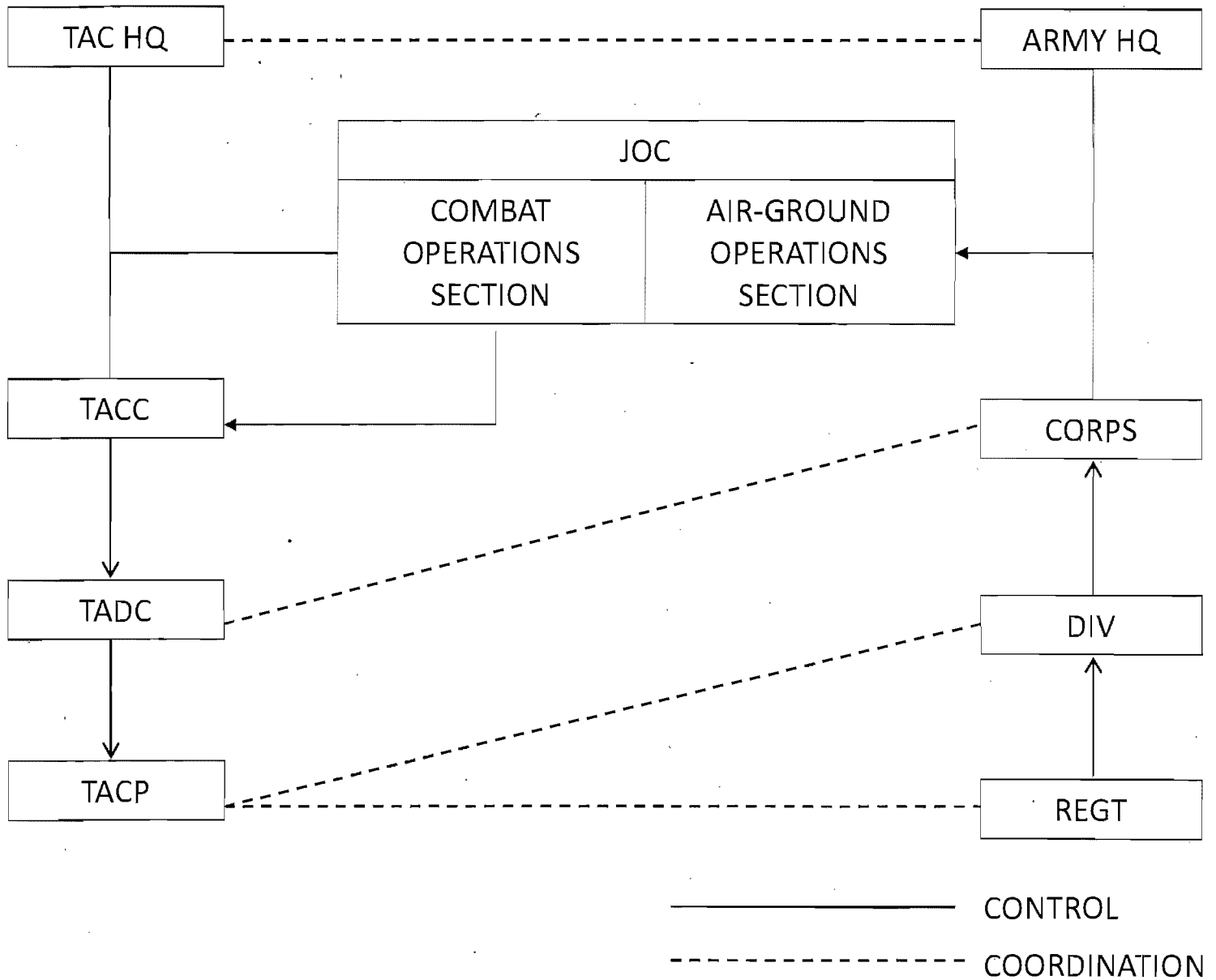


FIGURE 1

## Marine Air Command and Control System in Korea

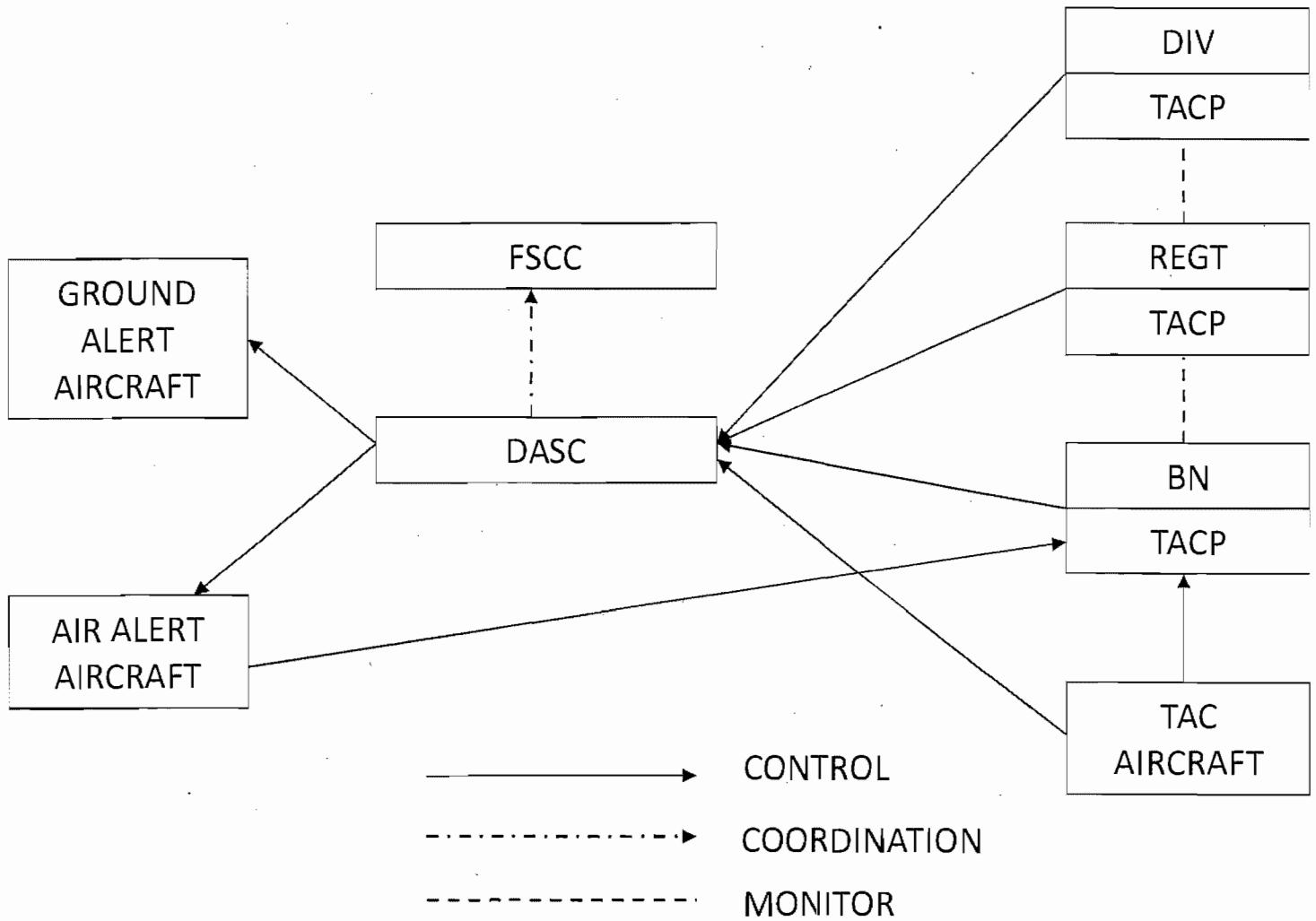


FIGURE 2

## Marine Air Command and Control in Vietnam

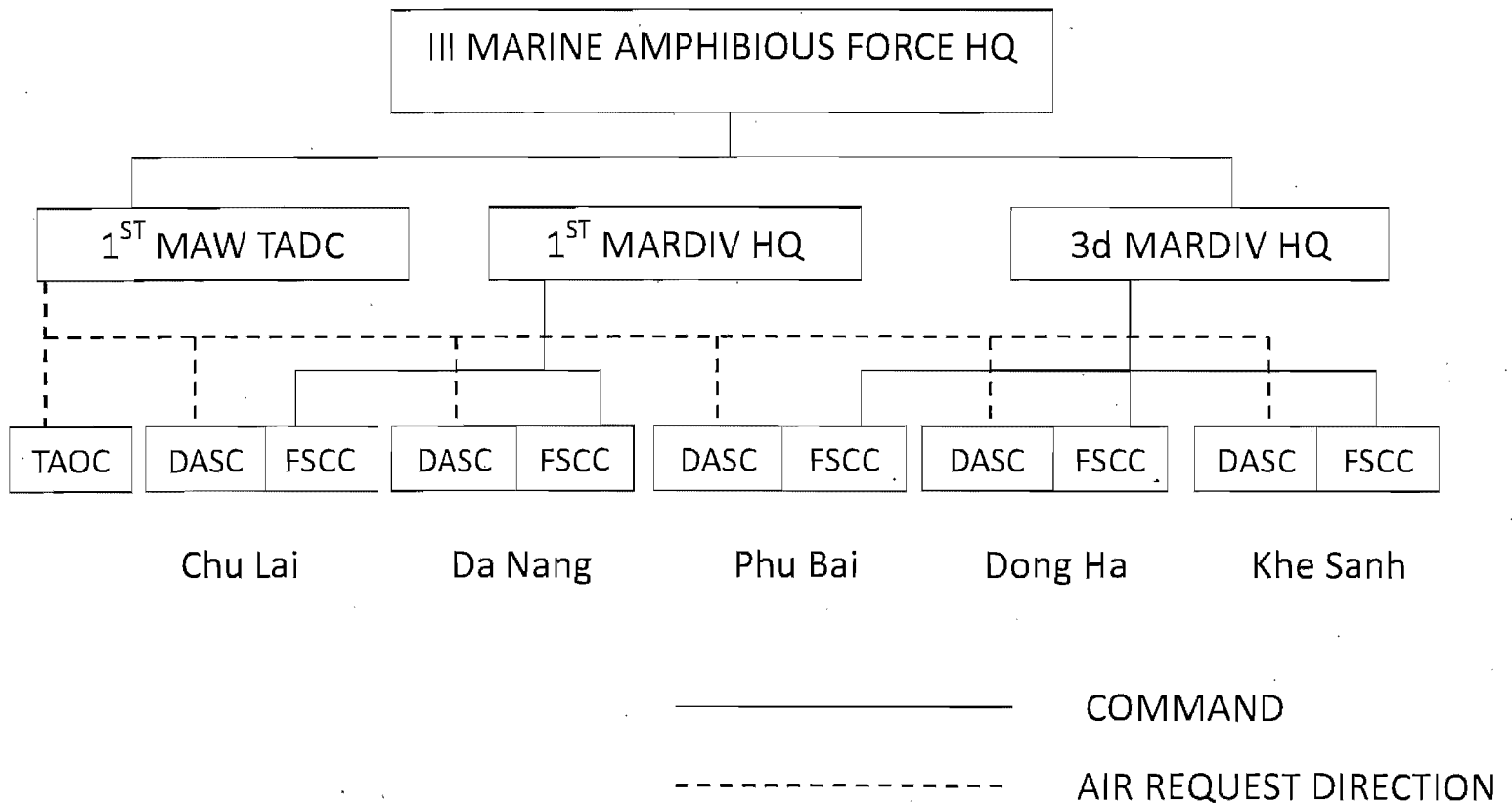


FIGURE 3

## Joint Air-Ground Operations System (JAGOS)

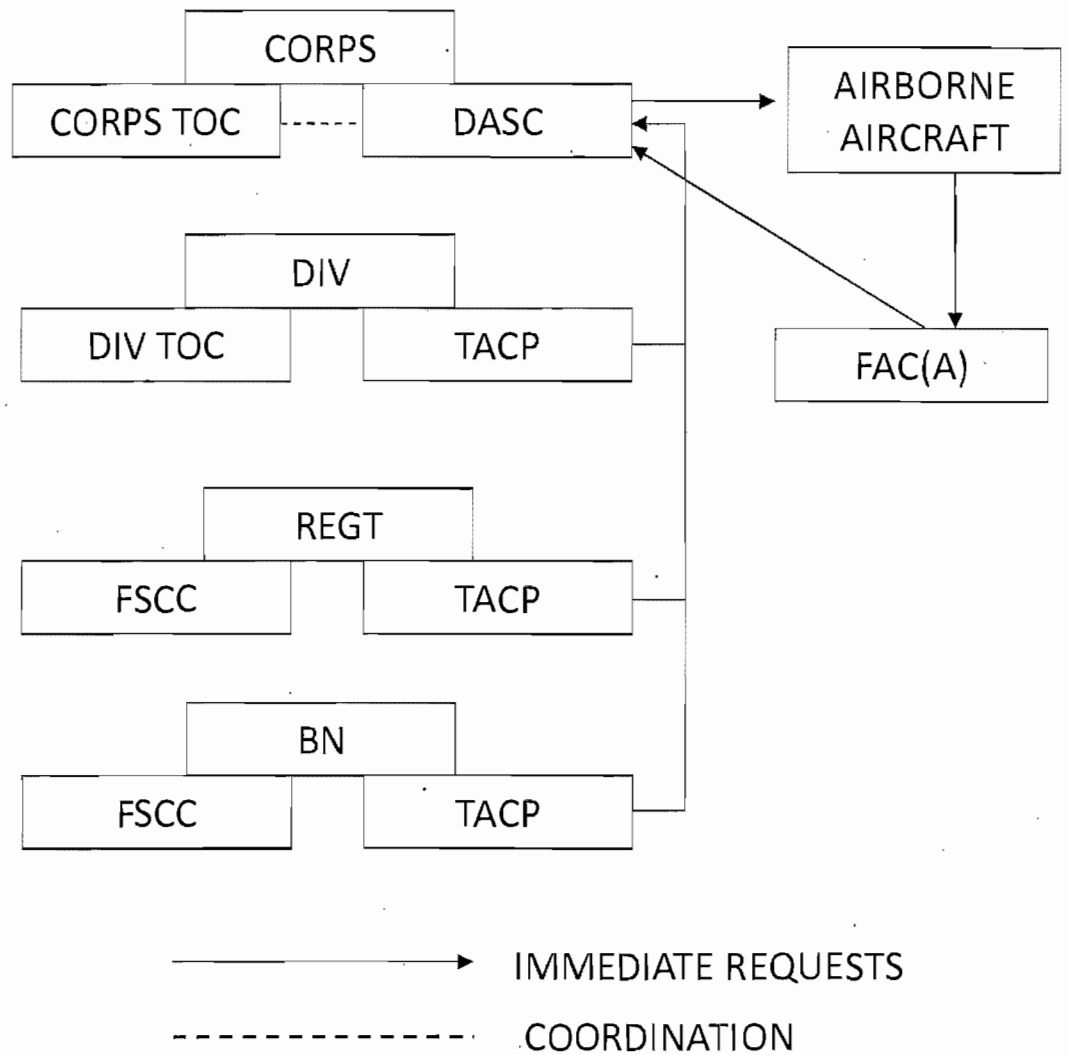


FIGURE 4

## Notes

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<sup>5</sup> John Schlight, *Help from Above: Air Force Close Air Support of the Army 1946-1973* (Washington, D.C.: Air Force History and Museums Program, 2003), 73.

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<sup>8</sup> Hammes, *Forgotten Warriors*, 31.

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<sup>18</sup> Trest, *Air Force Roles and Mission*, 136.

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<sup>71</sup> Callahan, Occasional Paper, 91-92.

<sup>72</sup> Momyer, *Airpower in Three Wars*, 323.

<sup>73</sup> Sbrega, *Southeast Asia*, 459-460.

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